CLAIMS

1. A method for mammographic image quality assurance, said method comprising the steps of:

- computerized algorithmic processing of at least one digital mammographic image of a patient based on at least one predetermined criterion for image positioning with respect to the breast for assessing image positioning quality;

- producing a positioning quality assessment result in real-time based on the computerized algorithmic processing; and

- determining, based on the positioning quality assessment result, whether said at least one mammographic image needs to be retaken with improved positioning, thereby enabling image retaking while the patient is still present at the examination facility.

2. The method according to claim 1, further comprising the step of retaking said at least one mammographic image with improved positioning if the quality assessment result indicates that the image is inadequately positioned.

3. The method according to claim 2, further comprising the step of performing repositioning of the patient before retaking said at least one mammographic image.

4. The method according to claim 2, comprising multiple retakes of inadequately positioned images, continuously updating which image or set of images among said multiple retakes that is considered most adequate.

5. The method according to claim 1, further comprising the step of communicating said positioning quality assessment result on a user interface to enable a real-time decision by a technologist to retake said at least one mammographic image.

6. The method according to claim 5, wherein said positioning quality assessment result includes a number of user-configurable parameters, thus allowing a selectable level of detail in communicating the result.

7. The method according to claim 1, wherein said positioning quality assessment result includes at least one of a visual part and a statistics part.

8. The method according to claim 7, wherein said visual part includes visual indication of inadequately positioned parts of the breast on a graphical user interface.

9. The method according to claim 1, wherein said algorithmic processing includes processing of at least one image area considered a landmark.

10. The method according to claim 1, wherein at least one threshold for poor contra good image positioning in said algorithmic processing is configurable via a user interface.

11. The method according to claim 1, wherein said at least one mammographic examination comprises several projections.

12. The method according to claim 1, wherein said at least one mammographic examination comprises at least one of a CC (Cranio-caudal) projection, an MLO (Medio-lateral oblique) projection, an LM (Latero-medial) projection and an ML (Medio-lateral) projection.

13. The method according to claim 1, wherein said method is applied in mammographic screening.

14. A method for digital mammography, said method comprising the steps of:

- generating at least one digital mammographic image of a breast of a patient;

- computerized algorithmic processing of said at least one digital
5   mammographic image based on at least one predetermined criterion for image positioning with respect to the breast for assessing image positioning quality;

- producing a positioning quality assessment result in real-time based on the computerized algorithmic processing; and

- determining, based on the positioning quality assessment result, whether
10   the image positioning quality of said at least one mammographic image is sufficient; and

- retaking, if the image positioning quality is insufficient, said at least one mammographic image with improved positioning while the patient is still present at the examination facility.

15   15. The method according to claim 14, wherein said positioning quality assessment result is communicated to a technologist and the step of determining whether said mammographic image needs to be retaken is performed by said technologist.

20   16. The method according to claim 14, wherein said step of determining whether the image positioning quality is sufficient and said step of retaking said at least one mammographic image are automated.

25   17. A system for mammographic image quality assurance, said system comprising:

- means for computerized algorithmic processing of at least one digital mammographic image of a patient based on at least one predetermined criterion for image positioning with respect to the breast for assessing image positioning quality;

- means for producing a positioning quality assessment result in real-time
30   based on the computerized algorithmic processing; and

-   means for communicating said positioning quality assessment result on a user interface to enable a real-time decision to retake said at least one mammographic image with improved positioning while the patient is still present.

18. The system according to claim 17, further comprising means for retaking said at least one mammographic image with improved positioning if the quality assessment result indicates that the image is inadequately positioned.

19. The system according to claim 18, comprising means for multiple retakes of inadequately positioned images, and means for updating which image or set of images among said multiple retakes that is considered most adequate.

20. The system according to claim 17, wherein said positioning quality assessment result includes visual indication of inadequately positioned parts of the breast on a graphical user interface.

21. The system according to claim 17, wherein said means for algorithmic processing is operable for processing at least one image area considered a landmark, and said system further comprises means for user-configuration of at least one threshold for poor contra good image positioning in said algorithmic processing.

22. The system according to claim 17, wherein said system is part of a mammographic screening system.

23. A digital mammography system comprising:
-   means for generating at least one digital mammographic image of a patient;
-   means for computerized algorithmic processing of said at least one digital mammographic image based on at least one predetermined criterion for image positioning with respect to the breast for assessing image positioning quality;

- means for producing a positioning quality assessment result in real-time based on the computerized algorithmic processing;

- means for determining, based on the positioning quality assessment result, whether the image positioning quality of said at least one mammographic image is sufficient; and

- means for retaking, if the image positioning quality is insufficient, said at least one mammographic image with improved positioning.

24. The digital mammography system according to claim 23, further comprising means for communicating said positioning quality assessment result to a technologist.

25. A computer program product for performing, when running on a computer, mammographic image quality assessment, said computer program product comprising:

- program means for algorithmic processing of at least one digital mammographic image of a patient based on at least one predetermined criterion for image positioning with respect to the breast for assessing image positioning quality;

- program means for producing a positioning quality assessment result based on the computerized algorithmic processing; and.

- program means for communicating said positioning quality assessment result on a user interface to enable a real-time decision to retake said at least one mammographic image with improved positioning while the patient is still present.

26. The computer program product according to claim 25, wherein said program means for communicating said positioning quality assessment result includes program means for enabling visual indication of inadequately positioned parts of the breast on a graphical user interface.

27. The computer program product according to claim 25, wherein said program means for algorithmic processing is operable for processing at least one image area considered a landmark, and said computer program product further comprises program

means for user-configuration of at least one threshold for poor contra good image positioning in said algorithmic processing.

28. The computer program product according to claim 25, wherein said computer program product is implemented in an image acquisition workstation of a digital mammography system.

29. The computer program product according to claim 28, wherein said computer program product is implemented for integrated operation with existing software in said workstation.

30. The computer program product according to claim 25, wherein said computer program product is carried on a computer-readable medium.

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CLAIMS

1. A method for mammographic image quality assurance, said method comprising the steps of:

5   - computerized algorithmic processing of at least one digital mammographic image based on image processing measurements of selected landmark areas of the breast together with at least one associated criterion for assessing image positioning quality to produce an automated real-time positioning quality assessment result; and

10   - communicating said positioning quality assessment result on a user interface to enable a real-time decision by a technologist whether to retake said at least one mammographic image with improved positioning.

2. The method according to claim 1, wherein said at least one criterion for

15 assessing image positioning quality includes a set of threshold values.

3. The method according to claim 1, further comprising the step of retaking said at least one mammographic image with improved positioning if the quality assessment result indicates that the image is inadequately positioned.

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4. The method according to claim 3, comprising multiple retakes of inadequately positioned images, continuously updating which image or set of images among said multiple retakes that is considered most adequate.

25   5. The method according to claim 1, wherein said positioning quality assessment result further comprises visual indication of inadequately positioned areas of the breast on a graphical user interface.

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6. The method according to claim 1, wherein said positioning quality assessment result includes a number of user-configurable parameters, thus allowing a selectable level of detail in communicating the result.

7. The method according to claim 1, wherein said positioning quality assessment result includes at least one of a visual part and a statistics part.

8. The method according to claim 1, wherein at least one threshold for poor contra good image positioning in said algorithmic processing is configurable via a user interface.

9. The method according to claim 1, wherein said at least one mammographic examination comprises several projections.

10. The method according to claim 1, wherein said at least one mammographic examination comprises at least one of a CC (Cranio-caudal) projection, an MLO (Medio-lateral oblique) projection, an LM (Latero-medial) projection and an ML (Medio-lateral) projection.

11. The method according to claim 1, wherein said method is applied in mammographic screening.

12. A system for mammographic image quality assurance, said system comprising:

- means for computerized algorithmic processing of at least one digital mammographic image based on image processing measurements of selected landmark areas of the breast together with at least one associated criterion for assessing image positioning quality to produce an automated real-time positioning quality assessment result; and

- means for communicating said positioning quality assessment result on a user interface to enable a real-time decision by a technologist whether to retake said at least one mammographic image with improved positioning.

13. The system according to claim 12, wherein said at least one criterion for assessing image positioning quality includes a set of threshold values.

14. The system according to claim 12, further comprising means for retaking said at least one mammographic image with improved positioning if the quality assessment result indicates that the image is inadequately positioned.

15. The system according to claim 14, comprising means for multiple retakes of inadequately positioned images, and means for updating which image or set of images among said multiple retakes that is considered most adequate.

16. The system according to claim 12, wherein said positioning quality assessment result includes visual indication of inadequately positioned parts of the breast on a graphical user interface.

17. The system according to claim 12, further comprising means for user-configuration of at least one threshold for poor contra good image positioning in said algorithmic processing.

18. The system according to claim 12, wherein said system is part of a mammographic screening system.

19. A digital mammography system comprising:
- means for generating at least one digital mammographic image of a patient;

- means for computerized algorithmic processing of said at least one digital mammographic image based on image processing measurements of selected landmark areas of the breast together with at least one associated criterion for assessing image positioning quality to produce an automated real-time positioning quality assessment result;

- means for determining, based on the positioning quality assessment result, whether the image positioning quality of said at least one mammographic image is sufficient; and

- means for retaking, if the image positioning quality is insufficient, said at least one mammographic image with improved positioning.

20. The digital mammography system according to claim 19, further comprising means for communicating said positioning quality assessment result to a technologist.

21. The digital mammography system according to claim 19, wherein said at least one criterion for assessing image positioning quality includes a set of threshold values.

22. A computer program product for performing, when running on a computer, mammographic image quality assessment, said computer program product comprising:

- program means for algorithmic processing of at least one digital mammographic image of a patient based on image processing measurements of selected landmark areas of the breast together with at least one associated criterion for assessing image positioning quality to produce an automated real-time positioning quality assessment result;

- program means for communicating said positioning quality assessment result on a user interface to enable a real-time decision whether to retake said at least one mammographic image with improved positioning while the patient is still present.

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23. The computer program product according to claim 22, wherein said at least one criterion for assessing image positioning quality includes a set of threshold values.

24. The computer program product according to claim 22, wherein said program means for communicating said positioning quality assessment result includes program means for enabling visual indication of inadequately positioned parts of the breast on a graphical user interface.

25. The computer program product according to claim 22, further comprising program means for user-configuration of at least one threshold for poor contra good image positioning in said algorithmic processing.

26. The computer program product according to claim 22, wherein said computer program product is implemented in an image acquisition workstation of a digital mammography system.

27. The computer program product according to claim 26, wherein said computer program product is implemented for integrated operation with existing software in said workstation.

28. The computer program product according to claim 22, wherein said computer program product is carried on a computer-readable medium.